OFFICE OF RESEARCH ON WOMEN'S HEALTH (ORWH)

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PINN POINT ON WOMEN'S HEALTH

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PODCAST 6:

BONE HEALTH AND OSTEOPOROSIS

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MALE ANNOUNCER: This is Pinn Point on Women's Health with Dr. Vivian Pinn, Director of the Office of Research on Women's Health. Now, here's Dr. Pinn.

DR. PINN: Welcome to another episode of Pinn Point on Women's Health. Each month on this podcast we take a look at latest developments in the area of women's health and the medical research that affects our lives. For this podcast, I am delighted to welcome Dr. Joan McGowan, who is now the Director of the Division of Musculoskeletal Diseases at the National Institute of Arthritis and Musculoskeletal and Skin Diseases at the National Institutes of Health.

Dr. McGowan was also the Senior Scientific Editor of the recent Surgeon General's Report on Bone Health and Osteoporosis. But first some hot flashes from the world of women's health research, coming up in just 60 seconds when we continue with Pinn Point on Women's Health.

MALE ANNOUNCER: At the NIH we know there's much to be learned from families, especially where one brother or sister has

rheumatoid arthritis, lupus, sclera derma or myositis and the other does not. Now does that sound like your family? Log on to clinicaltrials.gov or call 866-999-1116. If you're eligible, study-related tests are free. You'll be compensated for your time and transportation may be reimbursed.

The National Institutes of Health is a non-profit government agency and part of the US Department of Health and Human Services.

DR. PINN: Welcome back to Pinn Point on Women's Health. As promised, it's time to take a look at some of the hot flashes in the news regarding women's health research. I want to point out that during the month of December, in fact, December 10 through 12, 2007, the National Institutes of Health will be holding a State of the Science Conference to address prevention of fecal and urinary incontinence in adults. Now, while fecal and urinary incontinence can affect both men and women, we know that this is a problem of particular concern for women, not just older women but women across the lifespan.

Some of the questions that will be addressed at this State of the Science Conference

include what are the prevalence and incidents and natural history of this condition, what is the burden to society, but probably more importantly, what are the risk factors for fecal and urinary incontinence and what can be done to prevent fecal and urinary incontinence. If you're listening to this prior to December 10 to 12, you are welcome to attend as the public is invited and this State of the Science Conference will be held at the Natcher Conference Center on the NIH campus.

If you're listening to this podcast after that date, we will announce at a later podcast how you can have access to the proceedings and the report from that conference. There is some good news about research that is looking at how to address weight gain in young African American girls and hopefully, what is found for this study will be applicable to all girls.

We know that obesity is such a concern for women and for adolescents and for children as we're seeing an increase in obesity in our children and in our population in general. A report from St. Jude's Children's Research Hospital that was given at the recent American Heart Association meeting, reported that a

community-based weight control program was the first such intervention that has been studied and shown that it could succeed at least for up to two years in reducing the prevalence of overweight children according to the report that was given.

The positive effect of this particular study, which was called Girls' Health Enrichment Multi-Site Studies or GHEMSS, was that it occurred as a result of changes in dietary intake, particularly in the reduction of consumption of sweetened beverages, that means, for example, sodas, the kind of sodas and pop that young girls are apt to take. The GHEMSS girls did not appear to significantly increase their physical activity which shows that perhaps diet can help control weight gain in high-risk young girls even without a change in exercise, but of course, we all also know the value of exercise and we're looking to see what further studies will show in terms of the effect of exercise in addition on young girls in preventing obesity.

Another recent report was one also related to exercise and this one demonstrated that exercise as well as education about conditions could lessen the symptoms of fibromyalgia in

women. This was recently reported in the *Archives of Internal Medicine* and pointed out that increased exercise with education about how to manage the disease could really cut back on fibromyalgia symptoms. The study suggested that just progressive walking, simple strength training movements and stretching activities were effective at improving physical, emotional and social function, some of the key symptoms and self-efficacy in women with fibromyalgia who are also actively being treated with medication.

So while exercise may not be the total answer, it was very interesting to see that exercise also has a benefit for fibromyalgia patients. We'll have more updates in the next podcast and coming up next our visit with Dr. McGowan for a discussion on osteoporosis.

MALE ANNOUNCER: If you have thyroid cancer, we here at the NIH think we have a lot to learn from you. If you're older than 16 and are planning thyroid surgery or your first radioactive iodine treatment, why not log on to clinicaltrials.gov. All study related tests and procedures are provided for free. Check out clinicaltrials.gov or call 866-999-1116 for more

information. NIH is a non-profit government agency and part of the U.S. Department of Health and Human Services.

DR. PINN: Welcome back to Pinn Point on Women's Health and again, I am delighted that we have with us Dr. Joan McGowan, who is going to discuss with us bone health and osteoporosis. So, let me turn to Dr. McGowan and ask her to give us some introductory comments about bone health. What should we think of when we think of bone health and if we are going to talk about osteoporosis, tell us, what is osteoporosis?

DR. McGOWAN: Well, osteoporosis really means too little bone that is not strong and that's really the simplest way I can put it. I think one of the myths is that osteoporosis is all about older women, in fact, old ladies. One thinks of people with a bent back who have kyphosis and I think that's the image that people have but --

DR. PINN: Explain what kyphosis is, Dr. McGowan.

DR. McGOWAN: Well, kyphosis is that older lady you see how has her head forward and her back is bowed. She's probably lost a few

inches of height and probably has a great deal of trouble walking in this condition and it's really due to spine fractures that have accumulated over many years. But I would like us to dispel that image of osteoporosis and really focus this conversation about bone health. And bone health really begins in the uterus and it begins with healthy eating for mothers and then children and throughout life; healthy eating, healthy practices and I certainly resonate with your comments about exercise.

DR. PINN: Well, we're going to focus on bone health and I'm going to come back to that in just a second. But since we've started with the image of osteoporosis in the older woman, I think as we talk about bone health, our audience is going to be very concerned to know what else can be done besides the nutrition when you're in your mother's womb to prevent osteoporosis and also if osteoporosis doesn't just effect older women, what can we do to prevent it across the life span or is it too late when we get older and what about for men?

Tell us a little bit about the prevalence of osteoporosis and what young women

should think about or know about osteoporosis. Then we'll come back and talk about the real issue, which I appreciate your stressing, and that is we should be looking at health and not just diseases.

DR. McGOWAN: Well, I certainly would say that it's never too early in life or too late to think about bone health. For the most part, healthy people should not have this as a worry because many of the health practices that are good for your heart, that are good to prevent diabetes and obesity, are also good for the bones. So we like that because we don't have a completely different set of messages. Eating a variety of foods, fruits and vegetables as well as the well-known calcium containing foods, and Vitamin D are important throughout life, as is some form of physical activity and exercise. Those are the main themes for bone health.

But in addition to that, throughout life there are certain red flags and that would be other health conditions that should be recognized as having an effect on your bones and this can be a major way to prevent problems later on. As an example, eating disorders are quite common in some

situations where girls want to be very, very thin, it can also happen to girls who are very athletic and are extremely active in their sport, so active that they're not eating enough to maintain their good nutrition and they may also stop having their periods.

Those young women can be at very high risk of damaging their bones for life. So there are things that pediatricians should recognize and other physicians, conditions that require certain drugs for treatment that can affect bone. So for the most part, the healthy practices are good nutrition and physical activity and in addition, recognizing certain key red flags that can compromise bone health.

DR. PINN: I'd like to have you re-emphasize two points you made in that wonderful statement about focusing on bone health and this is especially for younger women in our audience and maybe some not so young women in our audience who are engaging in strenuous physical activity, who are very active in athletic events but also the whole business that we see for young girls related to their image.

So could I get you to just stress a bit

bit more about things like anorexia nervosa and bulimia on bone health as well as we think fitness and exercise are good for us but what that can do also to effect our bone health.

DR. McGOWAN: Certainly, the condition that you mentioned anorexia nervosa where particularly young women but it can also effect men, are decreasing their dietary intake and sometimes increasing their physical activity so much in the women, they stop having menstrual periods and that is a very, very serious signal that something has gone wrong. In addition, some fairly healthy segments of the population, people who do ballet as well as sports, can also be so physically active that they're not able to take in enough food to balance off their physical activity.

And once again, the red flag in a young girl who has begun menstrual periods, the cessation of those periods at any time after you've begun is a red flag that your health is not good, and particularly bone health may suffer. So those would be the segments of population that are often not recognized as something serious. So I think we should look at menstrual periods as a

vital sign and pediatricians and physicians seeing young women should simply ask the question, "Are you having regular periods."

DR. PINN: Very good point. I want you to stress two things that you've just addressed; one, you've talked about calcium intake and I know that that is always of concern to women who want to know how much calcium should I be taking or can -- will my diet take care of it itself? If I take supplements, should I, what kind, what type? And also you've talked about the role of exercise, which we've stressed in addressing so many other conditions that affect our health. How much exercise is good exercise?

DR. McGOWAN: Well, certainly calcium and vitamin D are thought of as cornerstones of good bone health and the reason we talk about them and not all the other nutrients that are really important is that calcium and Vitamin D are often limiting in people's diets. They're limiting because of practice. They're not limiting in the American diet. They're not really limiting in foods that Americans eat, but the main sources of calcium in the American diet are dairy products.

There's also calcium in vegetables, but

but it's at a low content. So the main source is dairy products and people who don't eat any cheese, any yogurt, and any milk, will have to be creative in the way they satisfy their body's need for calcium. Vitamin D is available from sunlight, but that sunlight is a double-edge sword and all of us now are aware that too much sun can lead to skin cancers, and so we have to exhort people to be careful with their exposure to the sunlight. Certainly we know in the Northern Hemisphere and in the winter and older people who don't get out that much that Vitamin D is also a very, very limiting nutrient.

It is only really available in fatty fish and in fortified foods like fluid milk.

DR. PINN: So for women who are thinking about taking calcium and vitamin D supplements, is there a general recommendation for them or where should they go to get that information?

DR. McGOWAN: Well, one of the things to note is that calcium is available in foods. So you probably don't have to think of satisfying your entire calcium requirement with a supplement if you need a supplement at all. And a very good

source to know how much calcium you are really taking in would be a calcium calculator. And the National Institutions of Health on our Web site, have a checkup on your bones interactive Web site and part of what that Web site allows you to do is to note what your normal intake of calcium is.

We're not talking about things you have once a month, but we're talking about on a daily basis, do you eat these different foods and you will get a response from the Web site about where you are and you'll be able to decide whether you need a supplement.

DR. PINN: So we should suggest that our listeners go NIH.gov and then search for calcium or search for bone health or go to the NIAMS Web site?

DR. McGOWAN: Yes. I think www.niams.nih.gov and then search osteoporosis.

DR. PINN: You were talking about exercise. What is optimum exercise for the woman who is not an athlete, not in professional sports but who is busily engaged in normal activities everyday other than those based in athleticism? What would you recommend in terms of bone health related to exercise?

DR. McGOWAN: Well, the major difference with bone health from cardiovascular health is that your bones need to feel they're loaded. They need to feel gravity in order to stay strong and stay with all of their calcium content adding to strength. And on the loading bones is a signal that you don't need as much bone as you have. And probably the best example of unloading bones is what we see in astronauts in space.

They have no gravity at all and we've seen that just a few months in space can cause the loss of a great deal of bone mass and reduce their strength, which they don't need in space. As they're floating around without gravity, the bones are pretty smart. They recognize that you don't need all of that weight and strength of the bone when you have no loading. But here on earth you need it and it truly is a use it or lose it organ. And so you need to be walking.

The upper body needs to be lifting something. I think if you think in terms of the muscles and the bone working together, working your muscles all over the body will effectively give the bone the signals that it needs.

DR. PINN: Excellent advice and we hear that for so many conditions, but we know that that information is especially important in preserving bone health, which brings me to the report of the Surgeon General, which you edited and I know that you helped to put together the studies that resulted in this excellent report. What are some of the major findings that are reported or some of the most important points that we learn from bone health and osteoporosis in the report from the Surgeon General's office?

DR. McGOWAN: Well, Dr. Pinn, a Surgeon General doesn't take on a report of this nature lightly. Generally, the Surgeon General is looking for areas where we have a lot of information about the right thing to do and we're not seeing that implemented. And in this case, we're not seeing good practices, things that are evidence based, like good nutrition, good calcium and Vitamin D nutrition, good exercise, we're not seeing it implemented by the public and we're also seeing that physicians are not acting on all the things that are known about, you know, building good bone in youth and keeping good bone in middle age and preventing bone loss in the elderly.

So the reason for the Surgeon General doing this report was to stress what we already know that's evidence-based and that the first part of this would be good healthy practices that we talked about, nutrition and exercise.

The second part would be recognizing threats to bone health. One of the big signals that bone may be weak is a fracture. And often fractures in older people are not recognized to be a signal, a sentinel event that the bone may be weak. So, if an older man or a woman has a fracture, an orthopedic surgeon can and will fix it and the bone will be restored. But it's a signal for them to do a further work-up, to see if that person has weak bones.

So the Surgeon General's report was to stress that we really do know a lot of things that are science based on NIH research evidence that are not being implemented by the public, by the healthcare practitioners and by the systems that we have. We have healthcare systems that could be signaling people that they need to take an action and none of these are completely being based on the evidence we have available.

DR. PINN: So for the women who are

listening, the central message you'd like them to take or to keep in mind related to their own bone health and their visits to their healthcare practitioners would be?

DR. McGOWAN: Well, certainly bring up your bones. Make sure that any fractures that you had have a follow-up to see whether your bone health is compromised. There's a very simple bone mineral density test that is available to certainly all women over 65 to have this test and see what the status of their bones, but even as I say that, we'd like to extend this to men.

DR. PINN: Good, I was going to ask you about that next. Yes.

DR. McGOWAN: I think we've been cheating them. I think we have neglected them. And certainly your office, with the experience of neglecting women and heart disease for so many years, we don't want to revisit that scene. The reason we focus on women and frankly, we focus on Caucasian women, is they have the highest risk of fracture when they get older. Nevertheless, men, women of color, men of color, all have incident fractures and they all need to listen to the message.

Even though Black men have the highest bone density of all the groups we've looked at, there are situations where they should be worried about their bone health and one of those situations would be the treatment of prostate cancer. Many times these days, a drug, an aromatase inhibitor, something that inhibits their sex hormones, is given to treat prostate cancer. A drug like that would have an effect on even the strongest bones. So I think a large part of the population needs to think about bone health only in specific situations. Many Caucasian, White women can look to their mothers and their aunts and know that they may be at risk for osteoporosis.

Even those who don't see it in their family and are not at obvious risk may be getting a treatment for another disease that could put them at risk. The Surgeon General's report is an outreach to the public, but it's also an outreach to physicians to begin to recognize some of these red flags and not to discount someone who is not White or not female.

DR. PINN: Well, I think you pointed out an important reason that our office has been

focusing on sex and gender issues and that is to understand when there are differences or similarities between males and females or men and women but on the other hand, we also hear that osteoporosis for the most part, in the past, has been studied in White women. You're pointing out a very important fact, which is that osteoporosis can affect males and females of any race or ethnicity, tell us what's happening in research now about including those other populations that need to be studied? Are we already doing that or have we already gotten results? What's in the pipeline?

DR. McGOWAN: Well, we put out a call for research in 1999 for osteoporosis in men when we recognized that we were basing all of our assumptions about osteoporosis risk on a large study of White women. We began in the late 90s to include some Black women in that very important study of osteoporotic fractures, and recognized at the same time that we should be looking also at osteoporosis in men. And we began a study then that is now in about its ninth year.

And clearly men are more likely to have fractures at an older age than women. And more

more likely it is due to secondary factors, other health conditions that contribute to a higher risk of fracture. But as men's health improves and we begin to treat cardiovascular disease and prostate cancer and men get to increase their life span, they will certainly move into the age -- they hope to be healthy in their 90s and we hope that they won't have fractures waiting for them after they've survived cardiovascular disease and cancer.

DR. PINN: You've mentioned a couple of times about medications such as those that might be given to men when they have prostate cancer. I believe the Surgeon General's report talked a little bit about medications that can result in osteoporosis. Can you mention a few of those or at least some of the general categories of medications that women or members of their families are taking which could cause them to have a particular concern about osteoporosis?

DR. McGOWAN: One of the most common medications used to treat autoimmune diseases like rheumatoid arthritis and lupus and treat many other conditions are steroid drugs called glucocorticoids. They're really miracle drugs,

they're needed to treat certain diseases and they're incredibly effective. It is very important to recognize that they have a bad effect on bone. And if that's recognized, then preventive steps can be taken to prevent the loss of bone while someone is using a drug like a steroid hormone for autoimmune diseases.

Other drugs recently associated with bone loss and fractures are the drugs used to treat depression. There's been evidence in recent years that people who have a long-term bout of depression are at increased risk of osteoporosis and fractures and I think we haven't completed dissected how much of that is due to the condition, their mental health, and how much is due to the drugs we're using to treat it. But once again, we like to see recognition if not completely on the part of healthcare practitioners, on the public so they would recognize, "I'm taking drugs that are perfectly appropriate for my condition," we assume that, but if there could be a bone down-side, is there something I should do about my bones at the same time?

DR. PINN: I'm going to ask you to

define a couple of terms that I think often confuse women. One is osteoporosis versus osteopenia and we talked about getting a bone density test. Tell us about a bone density test. What is that? What does that involve?

DR. McGOWAN: Well, osteoporosis and indeed osteopenia that is really just low bone mass, not as seriously low as osteoporosis, are really quantitatively defined by this bone density test that you mentioned. And the gold standard test for bone density is a dual energy x-ray absorptiometry test called DXA. So I think a lot of the older public has probably heard this term and hopefully a lot of older women have had the test but it's called DXA.

And the results of that test on a woman of any age are compared with healthy, young women and depending on where your bone density falls in comparison to healthy young women who don't fracture. The assumption is, we have a very large body of information on women under 30 who have healthy bones and we compare you with that set of data on those healthy women and if you're very, very low, you're defined as having osteoporosis. If you're in the mid-range, low bone mass, you're

bone mass, you're defined as having osteopenia.

We bone-heads don't really like the term osteopenia very much because it sounds like a disease and it sounds very scary. Osteopenia, low bone mass, compared with an average person can still be very healthy. It doesn't mean that you have a disease. It kind of puts a little cautionary note and a physician when doing the next test and the next test, would be looking to see whether you're losing bone mass because that assessment of low bone mass, it could be the same bone mass you had when you reached your full growth. You may not have lost bone. You need more than one test to see if you're actually losing bone and that would be when someone would think about an intervention, but only after you have what would be defined as osteoporosis.

DR. PINN: You are Director of the Division of Musculoskeletal Diseases. Would you tell us about some of the exciting studies that may be underway or exciting results that we've gotten recently from some of the research on bone health?

DR. McGOWAN: Well, you're right,

musculoskeletal diseases are more than bone, clearly. We also have a very active program in muscle and as I've noted, we think that muscle is talking to bone and the musculoskeletal system is an integrated unit and so although in our bone diseases program, we focus on bone, we are aware that the other parts of the system are all interacting very, very vitally, so there's part that focuses on muscle. Another part in orthopedics is really focusing on fracture repair and even joint replacement when that's necessary.

Joint replacement is really following a disease that is often confused with osteoporosis. It's osteoarthritis. Osteoarthritis is a degenerative joint disease focusing on the joint and this is a miracle operation. Certainly, anyone who has had a successful joint replacement knows that the pain and suffering associated with arthritis can disappear but certainly it's not an outcome that people would like. So we'd like to focus on the prevention of that disease and not getting to the point where you have degenerated joints and you need replacement.

DR. PINN: Are there differences

between men and women in terms of joint disease and joint replacements?

DR. McGOWAN: There are somewhat. I think one of the most important recent developments that you will like as the Director of the Office of Research on Women's Health is we've found that women are not small men.

DR. PINN: Good.

DR. McGOWAN: And that actually, we are now having gender specific joint replacements designed, recognizing the specific bio-mechanics of women -- our gait is not the same. Certainly, it's always been recognized there's a size difference but that's what we had, we just had a set of sizes of joint replacements that the surgeon could put in quite effectively. But we think now that these new female-specific joint replacements are going to be even more effective than just taking cognizance of the size of the bone. This takes the bio-mechanics into consideration.

DR. PINN: Women are not just small men. We have differences from our cellular levels to our joints and our bones and our muscles. Is that what we're learning?

DR. McGOWAN: That's what we're learning. In fact, way down at the cellular level, something that cell biologists and people that we support who are interested in regenerative medicine have never really taken into account whether the cells came from males or females. Well, they are now, because there's a very different regenerative capacity in cells that you would be using to restore bone, restore muscle, and grow tendons. They're very different depending on whether they came from a male or a female animal at this point. We're talking animal cells.

So that's a whole new set of investigations now that people's eyes are opened.

DR. PINN: I think that's very exciting because as we talk about women's health, we not only want to know about how to preserve our health and the conditions that effect our health but also as we focus on sex and gender factors, to know what research is showing us that makes it important for us to understand that there may be differences and that there are differences in the bodies, body structures and health between men and women.

But there is one other thing that is different about women that I must ask you to comment on before we come to some summary comments and that is the issue of menopause and women and bone health. And there was a lot of discussion following the results of the Women's Health Initiative related to osteoporosis and the use of menopausal hormone therapy, with lots of discussion about what post-menopausal women should do or consider to preserve their health?

Now, we know from what you've said, exercise and nutrition are important. What other things can you point out to our audience?

DR. McGOWAN: Dr. Pinn, I think you need to do a whole show on menopause and post-menopausal hormones, but you've been so intimately involved with the Women's Health Initiative, and NIH study that went on for 15 years that I think has really caused people to rethink the menopause and that's good and that's healthy.

Certainly, the menopause is a unique period in women's lives. Men certainly have the same kind of body aging and hormonal aging that women have but at the menopause there is a cessation of ovarian function that does cause

differences in many body systems. There are changes that go on during the menopause and one of the things is a steep decline in estrogen in women.

But, I want to state that estrogen is important throughout life in men and in women. Men without estrogen also have severe osteoporosis. We have a couple of male genetic examples where men were not able to either make or respond to estrogen and they had very, very serious osteoporosis. So throughout life, estrogen is important to men and women.

Before the menopause, women have much higher estrogen levels than men. After the menopause, actually, the men have more estrogen than we do. But menopausal women are not estrogen deficient completely. They still have circulating estrogen and one of the new thoughts is to find out what is sufficient for women. Many women in the menopause have sufficient estrogen to go through life and if not preserve all of the bone they had when they were younger, at least preserve enough of it not to have fractures.

So I think the Women's Health Initiative has opened us up to thinking there's

not one prescription for all. We don't even refer to replacement any more. We're looking more at the status of an individual and someone who has extremely low post-menopausal estrogen levels might profit from having a little. As you know, the end of the Women's Health Initiative was not to take estrogen products off the market, but in the words of the FDA, to use the lowest dose possible for the shortest amount of time.

DR. PINN: Well, we've covered a lot of areas related to bone health and osteoporosis and terminology and exercise but I want to turn to you now, rather than asking you to just respond to my questions, I'd like to ask you what have we not covered related to bone health that you would really like to stress to our audience?

DR. McGOWAN: Well, I think some of the exciting new areas in bone health are drawing connecting lines between many of the disease-oriented Institutes. We are having now a lot more interaction with the Institute that handles cancer, the Institute that handles diabetes, and, certainly, the National Aging Institute is very interested in osteoporosis and bone and muscle health. But we recently had a study indicating

that a product of the skeleton and bone cells, the most prevalent protein made by osteoblasts, bone-forming cells, osteocalcin actually access a hormone that has an effect on adipose tissue. And this has really excited us about the connection.

We knew that the brain is talking to the bone. There is actually a central regulation of bone mass. We knew that the adipose was making something called leptin that also has an effect on the bone. And now we've seen that the bone is making products that circulate that can have an effect on the adipose tissue and it also has an effect on glucose metabolism. So, you know, we're not so far off when we begin to sort of connect all of these health practices.

The stem cell that makes bone can also make fat. It can also make muscle and so some of the things developmentally that are driving that cell in one direction or another, would be very important to control as we wish to decrease obesity and increase muscle and bone function.

DR. PINN: We've talked about the Surgeon General's Report. For those who might be interested in getting information related to that report or seeing that report, how can they access

that report?

DR. McGOWAN: That report is available once again, through that NIAMS Web site. So once again if you go to www.niams.nih.gov, and I think if you put in osteoporosis, you will get to the site of our osteoporosis resource center that has a copy of the full Surgeon General's Report on Bone Health and Osteoporosis that is quite a tome to read but also something that is more accessible to the public that the Surgeon General himself was very anxious that we have something that was accessible to the public. The Surgeon General's report, *What it Means to You,* is a very colorful and easy to read introduction to bone health and answers, really, in more depth than I did, some of the questions you had about, "How do I get calcium, how much calcium should I get, how much Vitamin D, what can I do to for exercise to keep my bones healthy."

So I think that and the other materials on that Web site would be very, very useful.

DR. PINN: And I want to stress to our listening audience that there are so many resources available on so many topics related to

not only women's health but health and diseases in general that are available through the NIH going to NIH.gov and then searching for any condition that you might be interested in.

Well, this has been a fascinating discussion. I'm not sure I've directed the questions succinctly, but I think you've covered a lot of very interesting topics, broader than just osteoporosis, related to bone health focusing on women's health, men's health and I guess I'm going to ask you to conclude with what you started, and focus that you gave us at the very beginning. And that is you said that bone health really begins in the womb and then we talked about osteoporosis and degenerative arthritis effecting women and men in their later years.

Could you just give us a summary statement about bone health from the womb to the later years, the elderly years that you would want our audience to remember?

DR. McGOWAN: Well, clearly many people have said that osteoporosis that we see in the elderly has its origins in pediatric disease and so one of the things that's very important is building a skeleton is basically complete by your

20s and so there's a critical period that we can all influence in the children that we know, grandchildren, children in school, practices that would emphasize that the critical importance of that very early period, because if you don't put the bone in the bone bank, then you don't have it later to draw upon. And as we noted, women and men are going to lose some bone as they age, but if they built an adequate skeleton and taken care of it throughout life, they should be able to go through aging without fractures and a final thing is that's what we're avoiding.

We're not avoiding, you know, getting a number from a bone density machine. The important thing is to prevent the fracture.

DR. PINN: Thank you so much, Dr. McGowan, for an extremely informative and interesting discussion about bone health and osteoporosis, shall we say from the womb to the elderly years effecting not just women but men, our health and those diseases that effect our bones.

So coming in a few minutes a final thought for this month when Pinn Point on Women's Health continues.

MALE ANNOUNCER: Got a youngster around the house who is on the heavy side, but it otherwise healthy. The National Institutes of Health would like to talk to you to see what they can learn from your child. Not only are all study-related tests and treatments provided for free but all participants are compensated. Check or clinicaltrails.gov or call 866-999-1116 for more info. NIH is a non-profit government agency, part of the US Department of Health and Human Services.

DR. PINN: And now a few final thoughts. We've had a wonderful discussion with Dr. Joan McGowan, who is Director of the Division of Musculoskeletal Diseases at the National Institute of Arthritis and Musculoskeletal and Skin Diseases today. The takeaway message seems to be that we want to preserve our bones. We want to have healthy bones and there are ways that we can prevent osteoporosis but also ways that we need to be sure that we are taking to our physicians and healthcare providers to make sure we get a diagnosis if we're getting thinning bones so that we could prevent the fractures that can effect our health.

Certainly, better than I can summarize, remind you of what Dr. McGowan pointed out, which is that if you go to the Web site www.niams.nih.gov, g-o-v for government, search osteoporosis, that you can get access to not only the Surgeon General's Report on Bone Health and Osteoporosis, which those of you who want to read the whole tome can get, but probably more importantly a summary of the major points of that report in the one entitled, *What it Means to You*, and that is an excellent summary.

There are also many materials on this Web site not only in English, but in Asian languages and in Spanish, so I invite members of our audience regardless of your primary language or your interest, to go see the wealth of materials that are available and learn from what your government has prepared for you on this topic.

Obviously, from our hot flashes earlier in the show and from what we've just heard, we continue to emphasize the importance of basics in our lives in preserving health and that is diet, nutrition, and physical fitness or exercise. So I hope those points have come through as we continue

through as we continue with our focus on women's health.

Next month, we will focus on vulvodynia and if you don't know what that is, you're not alone. That's why we want to tell you about our awareness campaign related to vulvodynia, what it is and what you should know about it. Thank you for joining us on this episode of Pinn Point of Women's Health. In a moment, the announcer will tell you where to send your comments and your suggestions for future episodes. I'm Dr. Vivian Pinn, Director of the Office of Research on Women's Health at the National Institutes of Health in Bethesda, Maryland.

Thank you for listening.

MALE ANNOUNCER: You can e-mail your comments and suggestions concerning this podcast to Marsha Love at lovem@od.nih.gov. Pinn Point on Women's Health comes from the Office of Research on Women's Health and is a production of the NIH Radio News Service, News Media Branch, Office of Communications and Public Liaison at the Office of the Director, National Institutes of Health, Bethesda, Maryland, an agency of the US Department

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(End of podcast.)